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**Availability of Healthy Diets in 174 Countries:  
A Food System Assessment Using FAO Food Balance Sheets**

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# Availability of Healthy Diets in 174 Countries, 1961-2019: A Food System Assessment

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## Motivation

- **Availability of healthy foods** in the right proportions in food supplies around the world is a key determinant of whether people can consume healthy diets.
- **Food-based dietary guidelines** provide reference intakes for what constitutes a healthy diet.
- **Comparing across countries is difficult** because countries have their own national dietary guidelines based on different quantitative and qualitative recommendations.

## Objective

- We provide **novel measurement** of the degree to which national, regional and global supply and demand provides the mix of food groups needed for a healthy diet, based on target levels of intake recommended in national dietary guidelines.

## Data

- **Food supply data** from the Food and Agriculture Organization (FAO) Food Balance Sheets, defined as kilocalories per capita per day. Data are available for 171 countries and up to 97 food categories from 1961 to 2019.
  - Accounts for trade, changes in stocks, waste, and non-food uses.
- The **Healthy Diet Basket** is a composite food-based dietary guideline developed for international comparisons. HDB reference intakes (**Fig. 1, black dashed line**) are the median recommended amounts of 11 national dietary guidelines (**Fig. 2, gray dashed lines**).

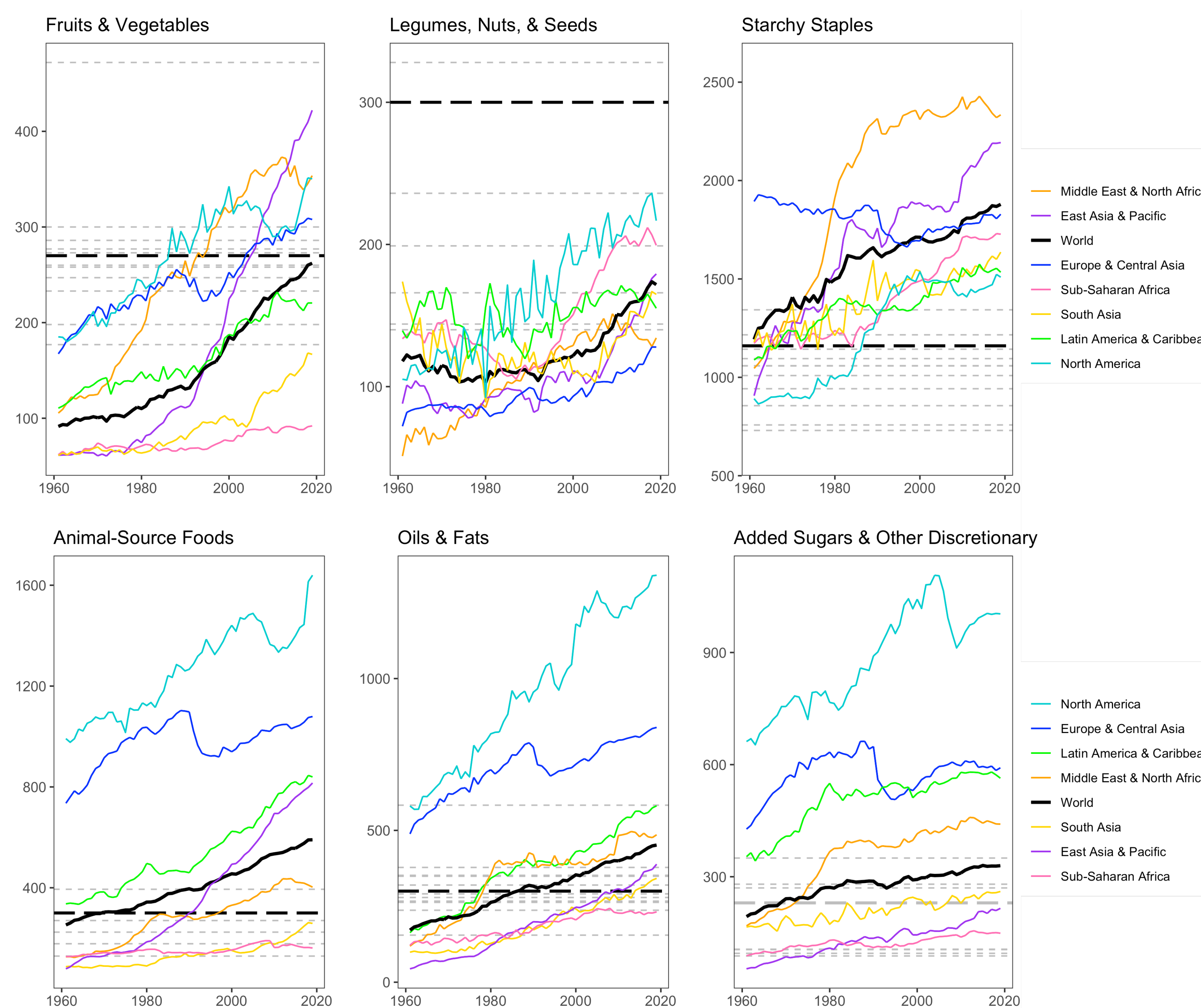
## Methods

- **Food group availability:**
  - Assign FAO foods to HDB food groups, excluding foods such as alcohol, condiments, and spices, then calculate the daily per capita energy available from each food group in each year.
  - Calculate regional food group availability using the World Bank designation.
  - Adjust for measurement error by standardizing to the HDB reference daily intake of 2330 kilocalories per person.
- **Healthy Diet Basket Adequacy Index: HDBAI**
  - Compute an index of a food supply's capacity to provide each HDB food group.
  - For each food group, divide the food supply quantity in each country by the HDB reference intake. Excess availability is treated as adequacy.
    - The HDBAI is the mean of this value across the 6 HDB food groups.
    - If all food groups are adequately supplied, HDBAI=1

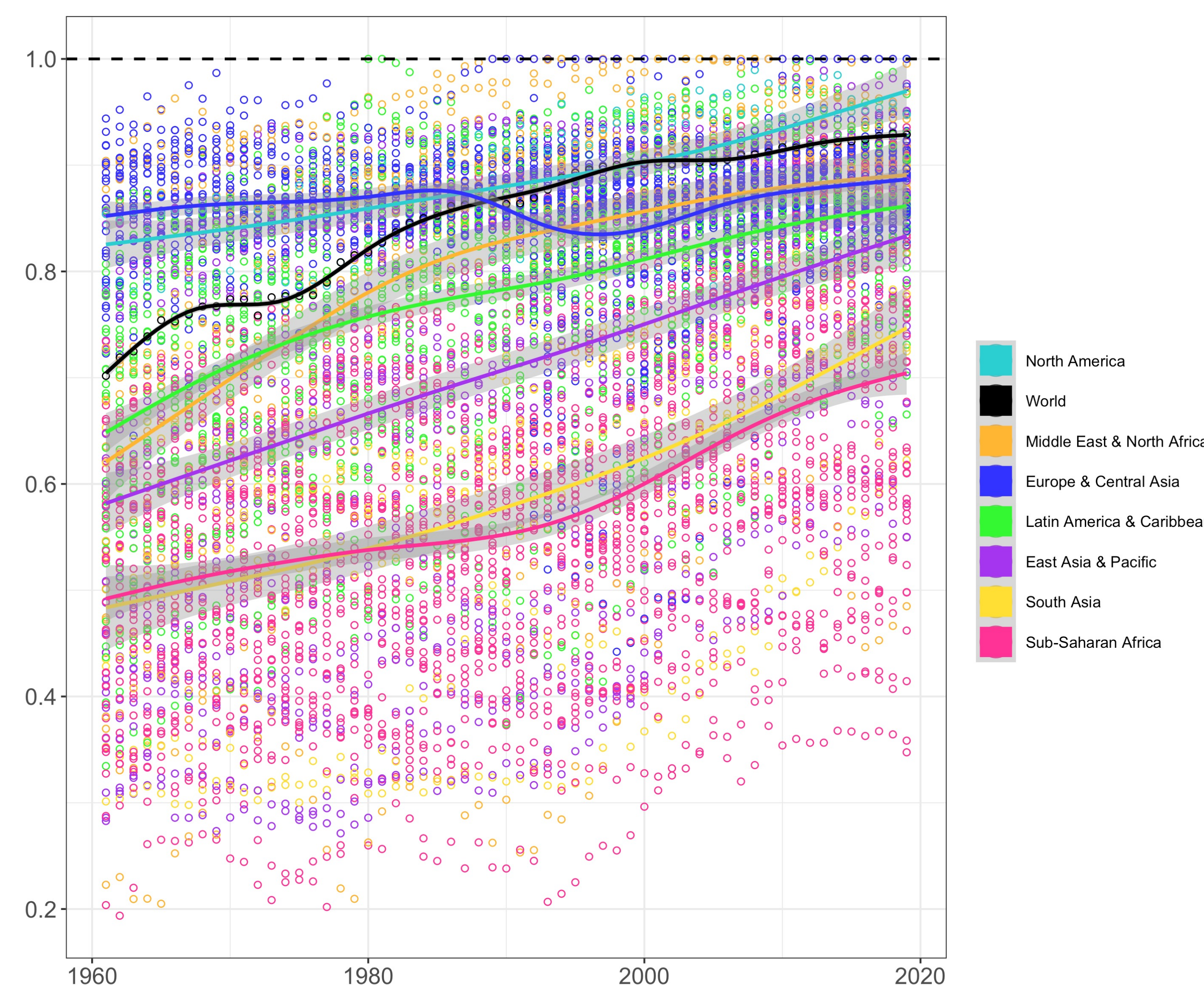
Table 1. Healthy Diet Basket food groups and reference intakes.

| Food group               | Reference intake (kcal/day) |
|--------------------------|-----------------------------|
| Fruits                   | 160                         |
| Vegetables               | 110                         |
| Legumes, nuts, and seeds | 300                         |
| Starchy staples          | 1160                        |
| Animal-source foods      | 300                         |
| Oils and fats            | 300                         |

## Per capita daily energy compared with reference intakes by food group and region, 1961-2019.



## Healthy Diet Basket Adequacy Index (HDBAI): Around the world, food supply adequacy increases over time.



## Results & Discussion

- **Fruits & vegetables** stayed constant in the global per capita daily food supply from 1961 to 1980. Since then, supplies have risen sharply everywhere except Sub-Saharan Africa, and are near recommended levels in much of Asia.
- **Legumes, nuts, & seeds** for food use declined in most regions from 1961 to 1980. Despite rebounding, they remain at less than half of recommended levels in all regions except Africa.
- **Starchy staples** in the global food supply have exceeded recommended levels since 1961, with sharp increases in many regions counteracted by flat growth in South Asia and Europe.
- **Animal-source foods** have increased everywhere, and the global average passed recommended levels in 1961, but are unequally distributed and remain well below recommended levels in Africa and South Asia.
- **Oils & fats** globally passed the threshold of adequacy in 1999, and now remain below the target level only for Africa.
- **Added sugars** abundant everywhere, with global availability surpassing the WHO's recommended limit in the 1960s, but availability has plateaued in recent years.
- **Food supply adequacy overall** has increased over time in all regions, with the global HDBAI rising from 0.70 in 1961 to 0.92 in 2019.

## Conclusions

- **The global food system has made significant but mixed progress** toward providing an adequate balance among food groups to meet dietary recommendations.
- **Further resource reallocation in agricultural production and trade** will be needed to bring food supplies into closer alignment with the requirements for a healthy diet.
- **These changes must be larger in some regions of the world** but are typically within the range of changes observed in some regions in the past.

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Food Prices for Nutrition